Stormwater as a Source of Drinking Water: The Example of LA

Jeremy Brown April 10, 2013

The New York Times recently heralded efforts in Southern California to turn stormwater into drinking water: "Even in this water-starved region, storm and other runoff has become the primary source of water pollution. . . But now, local officials are trying to deal with runoff pollution and another problem — the lack of drinking water — with an ambitious plan to make the runoff drinkable."

This effort seems inspired by the same sort of thrifty ingenuity that towns like Wichita Falls have shown in pursuing technologies that would turn sewage into potable water. And it would seem to have natural appeal in drought-plagued Texas.

The California plan would promote property design features that retain water onsite. These features are sometimes referred to as "low-impact development" or "green infrastructure." The Texas Commission on Environmental Quality has published green infrastructure guides for several cities, but Texas has not been a leader in this area.

The current drought and the pessimistic projections of the State Water Plan have inspired, at least for now, a sober conservation-mindedness that could come to embrace green infrastructure and its potential to recharge aquifers, which supply about 60 percent of the water used in the state. If so, Texas may want to learn from the experiences of Los Angeles.

Groundwater accounts for 40 percent of the drinking water in California, and Los Angeles County has been using stormwater to replenish basins for more than forty years. Currently, the amount of water that the county derives from blending stormwater would cost about $120 million a year if purchased from a wholesaler. Still, much stormwater goes unused: in the wet season, Los Angeles discharges about 100 million gallons into the ocean each day.

With population growth and climate change expected to worsen scarcity issues, the region is coming to see greater value in stormwater. In 2009, the California legislature found: "Stormwater, properly managed, can contribute significantly to local water supplies through onsite storage and reuse, or letting it percolate into the ground to recharge groundwater, thereby increasing available supplies of drinking water."

Green infrastructure – which could include all kinds of site design features, from permeable pavement to constructed wetlands – gives local governments a means of capturing stormwater and seeping it into basins. The EPA describes green infrastructure thusly: "Unlike single-purpose gray stormwater infrastructure, which uses pipes to dispose of rainwater, green infrastructure uses vegetation and soil to manage rainwater where it falls. By weaving natural processes into the built environment, green infrastructure provides not only stormwater management, but also flood mitigation, air quality management, and much more."

Collectively, green infrastructure improvements may cost less than new sewage treatment plants – and, in arid precincts like Southern California, less than the infrastructure needed to import or desalinate new sources of water. On a social level, they may produce public health, environmental and recreational benefits that outweigh costs. But for individual property owners, installing green infrastructure can be expensive.

Last fall, the Los Angeles Regional Water Quality Control Board – an arm of the California agency responsible for implementing the Clean Water Act – adopted new stormwater regulations that allow regulators to fine local governments that exceed pollution control limits.

Property owners and officials from financially challenged cities have complained about the costs of compliance. The City of Los Angeles, which observers have repeatedly warned is on the verge of bankruptcy, predicted that compliance costs would total between $5 billion and $8 billion over the next twenty years.

To help local governments meet the costs, and to avoid irking regulators, Los Angeles County – which has a population of 9.9 million and already spends about $350 million a year on stormwater – proposed a parcel fee on property owners that was intended to raise $290 million annually. The county called its proposed fee the "Clean Water, Clean Beaches Fee," emphasizing the policy rationale that environmentalists have use to push for stormwater reductions.

But opposition has been strong and the future of the fee is uncertain. And even if the fee passes, there are legal and financial challenges to implementing green infrastructure on a broad scale. In Los Angeles County, as in most of the country, property owners have no financial incentive to retain stormwater; they are not charged more based on the amount of stormwater they channel into the municipal sewer system.

One solution would be to internalize the costs of stormwater. Philadelphia, for instance, has adopted a rate structure based upon the effective impervious area of a particular parcel (since perviousness is a reasonable proxy for the percent of rainwater that will be retained onsite).

Another would be to adopt green building codes that require new developments to include green infrastructure design features. Such an approach could help to avoid the added costs of retrofitting and would be particularly influential in high-growth areas where the built environment is just beginning to take shape.

California water

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